

U.S. Patent Appln. 10/615,136
Amendment and Transmittal of Sworn
Translation filed December 29, 2004
Response to Office Action mailed September 29, 2004

REMARKS

Claims 1-11 are pending in this application. Claims 2 and 2/11 have been deemed to present allowable subject matter, and claims 1, 3-10, 1/11 and 3/11-10/11 have been rejected. Claims 1-11 have been amended. Claim 1 is independent.

Various claim changes are stylistic in nature, and just improve the form and clarity of the claims. No new matter has been added; the changes to claim 1 involving transmission of external force through part of the ink jet printer when the ink cartridge is mounted on the ink jet printer are fully supported by the original disclosure, for example, in Figs. 4, 7 and 8.

The Rejection Under 35 U.S.C. § 102

Claim 1¹ was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,500,663 to Ujita et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

It is important to recognize that the present invention is directed to an ink cartridge having a valved air vent (including an air-releasing valve member) that remains closed until the air-releasing valve member receives force applied by the ink jet apparatus onto which the cartridge is mounted. In other words, when the ink cartridge is mounted on the ink-jet apparatus, the ink-jet apparatus presses the air-releasing valve member to open the valve.

More specifically, as described in claim 1, this invention is directed to an ink cartridge detachably mountable on an ink-jet printing apparatus. The cartridge has an ink accommodating portion for holding ink, an air passage through which said ink accommodating

¹ The Office Action actually stated "Claim a is rejected..."; it is understood the Office Action was intended to refer to claim 1. If this understanding is not correct, the Examiner is requested to contact the undersigned so a suitable supplemental response can be provided.

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portion communicates with the atmosphere, and a valve mechanism, provided in the air passage, including an air-releasing valve member that seals a communication hole provided in a partition wall that separates an ink-accommodating-portion side of the ink cartridge, which is a side close to the ink accommodating portion, from an atmosphere side of the ink cartridge, that is a side close to the atmosphere. The valve mechanism extends in a direction from the ink-accommodating-portion side toward the atmosphere side. The air-releasing valve member has a contact portion that opens the air passage in response to an applied external force, transmitted through a part of the printing apparatus when the ink cartridge is mounted on the printing apparatus, from the atmosphere side toward said ink-accommodating-portion side.

Ujita fails even to suggest the invention as claimed. Those skilled in the art will appreciate that Ujita's valve opens automatically in response to a pressure differential between the interior of the cartridge and the atmosphere (col. 7, line 59, through col. 8, line 26). There is no suggestion in Ujita that the valve is pressed open by structure of the printer, or that the valve remains closed until so pressed, as in the claimed invention.

It is well-accepted that a reference which does not identically disclose all the features of a claimed invention cannot anticipate that invention. Here, Ujita does not even suggest that an ink cartridge has a valve which remains closed until pressed open by the ink-jet printer; in fact, since Ujita teaches the valve opens automatically in response to a pressure differential, Ujita teaches away from that invention. Accordingly, Ujita does not anticipate or render obvious the present invention.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

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Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,040,002 to Pollacek et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 1 already has been summarized in connection with the rejection based upon Ujita, and so, in the interests of brevity, that summary is incorporated by reference herein.

Pollacek suffers from the same deficiencies as Ujita. Pollacek teaches an ink cartridge having a vent valve which opens automatically in response to a pressure differential caused by underpressure in the ink cartridge (col. 2, lines 13-42). Pressure is controlled automatically by a regulator that is part of the ink cartridge (col. 3, line 65, through col. 7, line 68). There is no suggestion that Pollacek's valve remains closed until it is opened by structure of the printer. Accordingly, Pollacek does not anticipate or render obvious the present invention.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

Claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,511,168 to Higuma et al.² Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 1 already has been summarized in connection with the rejection based upon Ujita, and so, in the interests of brevity, that summary is incorporated by reference herein.

Higuma suffers from the same deficiencies as the other references already discussed. As shown in the drawings, Higuma teaches ink cartridges each having a vent valving mechanism 10 (or V) which automatically opens in response to a pressure differential caused by underpressure in the ink cartridge (col. 4, lines 42-50; col. 5, line 63, through col. 6, line 44).

² Inadvertently identified as patent no. 5,511,168 at page 4 of the Office Action.

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Higuma specifically teaches that the valving mechanism 10 can function even when the ink cartridge is detached from the printer, for example, during both shipping and storage of a partially-used ink cartridge (col. 6, lines 25-44). So there is no suggestion that Higuma's valve remains closed until it is opened by structure of the printer. Accordingly, Higuma does not anticipate or render obvious the present invention.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

Claim 1 was rejected under 35 U.S.C. § 102(a) as being anticipated by Japanese Laid-Open Patent Appln. No. 2002/205414 to Sakai. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

This rejection is not well-taken, because Sakai is not prior art as to the present invention. Specifically, this application claims the priority of two Japanese patent applications, one of which, JP 2002-200589, was filed on July 1, 2002. The invention, as claimed, is supported by the earlier-filed of the two Japanese applications.

Sakai was published on July 23, 2002, after the earlier priority date. Accordingly, Sakai is not prior art as to the present invention.

In accordance with 37 C.F.R. § 1.55(a)(4), a sworn English translation of the earlier priority document for this application is submitted herewith.

Claim 1 was rejected under 35 U.S.C. § 102(a) as being anticipated by Japanese Laid-Open Patent Appln. No. 4-232059 to Kogo et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 1 already has been summarized in connection with the rejection based upon Ujita, and so, in the interests of brevity, that summary is incorporated by reference herein.

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Kogo suffers from deficiencies similar to the other references already discussed. Kogo teaches a valve 7 closing the vent hole 4a of an ink cartridge which automatically opens when the pressure in the ink cartridge becomes negative as a result of ink consumption (abstract). Kogo's valve appears to open by itself whenever pressure inside the ink cartridge drops; there is no teaching that the valve is only opened by structure on the printer. Accordingly, Kogo does not anticipate or render obvious the present invention.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

Claims 1 and 3-10 were rejected under 35 U.S.C. § 102(e) as being anticipated by European Patent Appln. No. 1 199 178 to Miyazawa et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

First, it is noted that Miyazawa, a European patent application, is not § 102(e) prior art. It is believed the Examiner meant to make this rejection under a different provision of § 102, and clarification is respectfully requested.

Claim 1 already has been summarized in connection with the rejection based upon Ujita, and so, in the interests of brevity, that summary is incorporated by reference herein (the remaining rejected claims all ultimately depend from claim 1, and so incorporate by reference the features of claim 1 that will be shown to avoid the cited art).

Miyazawa does not even suggest a valve mechanism of the type recited in claim 1. More specifically, the valve mechanism of claim 1 is in the air passage and has an air-releasing valve member that can seal a communication hole provided in a partition wall separating an ink-accommodating-portion side of the ink cartridge (a side close to the ink accommodating portion)

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from the atmosphere side of the ink cartridge (a side close to the atmosphere), the valve mechanism extending from the ink-accommodating-portion side toward the atmosphere side.

Applicants submit that Miyazawa actually teaches a valve arranged in the **opposite** manner. As shown in Figs. 26A-B, 28, 32A-B and discussed in ¶¶ 128-129, Miyazawa's valve seals the communication hole in the direction extending from the atmosphere side toward the ink accommodating portion.

As taught in the disclosure, the atmosphere is directed to a side of elastic member 222. When the valve member 225 opens, air is directed to a side of arm 234 via the through-hole 220. While it may be asserted that Figs. 32A and 32B do not show this feature with full clarity, because the through-hole 220 appears to be merely a space at the side of the arm 234, one skilled in the art would recognize that the through-hole 220 penetrates near a recessed portion 203. Accordingly, they would conclude air flows from a side of elastic member 222 to the side of the arm, 234 when the valve member 225 opens.

More specifically, those skilled in the art will realize Miyazawa's valve is oriented in a different manner from that claimed. In this regard, Miyazawa teaches the interconnection of elements involving the airflow in paragraphs [0111]-[0114], [0112] [0118] [0123] [0128] and [0129] and the corresponding drawings Figs. 22B, 26A, 26B, 28, 29, 30, 32A and 32B. The following contents I and II are readable from the descriptions and figure drawings listed above.

As a further convenience to the Examiner, Applicants annex as Exhibits I-III marked up drawings that illustrate how air flows in Miyazawa's ink cartridge.

First, with reference to the drawings following Exhibit I, it will be explained how air flows from the atmosphere to valve member 225 in Miyazawa's ink cartridge.

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In that cartridge, as shown in Fig. 26B, air flows from opening "1000" to a narrow groove 196 to one end 196a to a recessed portion 198. From there, as shown in Fig. 28, the air flows in through hole 198c to a slender region 199a and then to the other end of through hole 200. The air continues through groove 201 (shown in Fig 26B) to through hole 201a (shown in Fig 28) into valve chamber 168 (shown in Fig 22B) and along through hole 220 (shown in Fig. 28) in the valve chamber 168 (again, shown in Fig. 22B) to valve member 225, which is shown in Figs. 29, 32A and 32B.

By virtue of this structure, the atmosphere is directed to the valve member 225 from the side of body 225b, i.e., a side of the valve member 225 that is pressed by an elastic member 222 toward the right direction as seen in Figs. 32A and 32B.

Turning to the drawings following Exhibit II, it will be explained how air flows from ink chamber 171 to valve member 225 in Miyazawa's ink cartridge.

As shown in marked-up Fig. 28, air flows from the upper end(s) of the first ink chamber 171 to a flow passage 206 to a flow passage 205 to a through hole 203a to a through hole 203a, shown in Fig. 26B, to a recessed portion 203 also seen in Fig. 26B, to a valve member 225 which is shown in Figs. 30, 32A and 32B.

Consequently, air from the first ink chamber 171 is directed to the valve member 225 from a side of a protruded portion 225a, i.e., a side of the valve member 225 that is pushed by an arm 234 toward a left direction as seen in Figs 32A and 32B.

Given this manner of airflow, it should be understood that in Miyazawa, the valve member 225 is pressed by the elastic member toward a right direction shown in Figs. 32A and 32B, i.e., the through hole 220 is sealed by the valve member 225 in a direction from the atmosphere toward the ink first chamber.

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In contrast, in Applicants' claimed invention, air from a second ink chamber 324 is directed to an air releasing member 70 from a side of an base portion 72, i.e., a side of the air releasing member 70 that is pressed by a pressing member 80 toward a right direction shown in Figs. 7 and 8. So the atmosphere is directed to the air releasing member 70 from the side of projecting portion 74, i.e., a side of the air releasing member 70 that is pressed by a pressing member 80 toward a left direction, shown in Figs. 7 and 8. Thus, in the present invention, the inside-outside communication hole 26 is sealed by the air releasing member 70 in a direction from the ink accommodating-portion side toward the atmosphere side. This also may be more clear in view of the marked-up drawing at Exhibit III.

Thus, it is apparent that the orientation of the airflow of the present invention is opposed to that of Miyazawa.

So the present invention seals the communication hole in the opposite direction from Miyazawa. Consequently, the claimed invention seals the opening more strongly than Miyazawa, for example, if the pressure in the ink chamber increases.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

**The Rejection Under
35 U.S.C. § 103**

Claims 1/11 and 3/11-10/11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyazawa in view of U.S. Patent No. 6,283,587 to Umemura. Applicants respectfully traverse this rejection and submit the following arguments in support thereof.

All of the rejected claims ultimately depend from and so incorporate by reference all the features of claim 1, including those features just shown to avoid Miyazawa.

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Umemura is cited only as teaching a particular outer packaging. Even if that is true, Umemura does not teach a valve structure as claimed, and so does not remedy the deficiencies of Miyazawa. Consequently, these claims patentably distinguish over the cited combination of references at least for the same reasons they avoid Miyazawa.

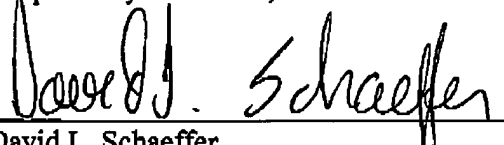
Accordingly, this rejection is not well-taken. Favorable reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

It is respectfully submitted that all rejections have been overcome. Accordingly, favorable consideration and prompt allowance of this application is respectfully requested.

In the event that there are any questions, or should additional information be required, please contact Applicants' attorney at the number listed below.

Respectfully submitted,



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